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SPOTS and STRIPES

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Skating on the waterfowl pond, circa 1920.

(Smithsonian photo)

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WINTERIZING THE ZOO

On cold winter evenings, from high places around the Zoo, you can see dozens of softly glowing lights scattered through the darkness where the animals are settled for the night. They are a reassuring sight for Zoo staffers as they bundle up to leave for home, for the glow comes from infra-red lamps that keep hundreds of "outdoors" birds and mammals snug no matter how bitterly the wind blows.

The heat lamps are just one of the answers to the varied problems of winterizing the population at the National Zoological Park. The task of preparing for winter involves variables that might boggle a computer. To the uninitiated it might seem simple to decide what goes out and what stays in. Not so. Our Zoo has tropical prima donnas ready to swoon at the thunder of snowflakes on the roof, but other animals from similar warm climates unpredictably thrive on a certain amount of cold, and should not be deprived unnecessarily of sun and fresh air. It takes experience and unerring judgment to decide. There are winter burrowers needing somewhere to burrow, and hibernators wanting to grow fat and sleepy. Breeding seasons must be controlled among the hoofed stock so that the young will not come too early or too late. Possibly pregnant bears must be provided with secluded nurseries. And the victims of reversed seasons such as Australian kookaburra birds and South American swans will ignore our northern hemisphere calendar to hatch eggs at exactly the wrong season.

The Washington area climate can be a special problem, according to Don Bridgwater, coordinator of the Department of Living Vertebrates. Washington lies borderline between northern and southern climates. Days of January shirtsleeves weather can be followed abruptly by freezing cold. Sleet and rain can freeze, causing hazardous footing for deer, gazelles and the rest of the hoofed stock. These animals are virtually helpless on ice. In the wild, many deer lose lives after wandering onto frozen lakes or other iced areas.

To anticipate specific problems, and to generally prepare the animals for the cold months, our Zoo begins its planning early in the fall. Division by division the winter needs of reptiles, birds and mammals are considered. Each detail is planned or already operational by October 15. Shelters and barns have been checked for needed repairs. They will be heated and provided with deep beds of straw. Plastic weatherbreaks and cage covers are in place. Some of the more delicate mammals, such as kudus, dorcas gazelles and most primates, along with warm-climate birds, move indoors permanently. Autumn is the time for most birds and animals that face cold winters in the wild to add layers of fat. At the Zoo, food rations are increased for these species, with corn high on the list of nourishment useful to build up body reserves.

Most of the animals in the large mammal house are from tropical or subtropical areas of the world. Elephants, rhinos, giraffes and hippos face many weeks at a time indoors. The National Zoo takes full advantage of Washington's off-and-on warm days to let the big mammals out for fresh air whenever the weather allows. Rhinos, which tend to be somewhat hardier, are allowed to come and go through special canvas flaps whenever the temperature is in the 40's or 50's—that is, if there is no wind. Mr. Bridgwater emphasizes the importance of calculating the chill factor in wind. It will drop skin temperature well below air temperature. Until somebody comes along with a windbreak for rhinos, the chill factor will be an important consideration.

The great majority of the primates (apes, monkeys, lemurs, bushbabies, marmosets, etc.) are from warm parts of the world. The doors to their outside cages are sealed shut until spring. A handful of varieties have proved hardy during our winters, however. The macaques, a big and generally tough family of monkeys that includes the Barbary apes and rhesus monkeys, remain in their outside cages. So do the baboons and white-handed gibbons. All have easily accessible shelters with wooden floors, steam heat and plenty of straw bedding. South American or "New World" monkeys, all of which must remain indoors, seem to suffer more than "Old World" primates from lack of sunshine during the winter months. To compensate, their keepers treat them to sessions of basking beneath sun lamps. It feels good and helps add sunshine vitamin D. On the books for tomorrow's zoo are partial sun roofs for all the monkey cages.

The canines housed along the wolf line thrive on the cold. So do the bears, of course.

To Don Bridgwater, however, the most irrepressible fans of winter weather are the lesser pandas. Even during driving snow, these delightful little animals will often choose their favorite perch up in the tree, ignoring the snug shelter down below.

A relatively small number of our Zoo's animals are true winter hibernators. A larger proportion will have occasional periods of dormancy without completely hibernating. Our relatively mild climate is partially responsible. NZP bears rarely, if ever, go into deep hibernation although most of them would do so in their more frigid wild habitats. Occasionally they will drift into a torpid state, but in general remain active throughout the winter.

Visitors often wonder about the prairie dogs, which seem to be such lovers of sun and warmth, and are apt to be nowhere in sight on a winter's day. They have long since become rollingly fat and have vanished into their burrows. They do emerge now and then, however, and do not sleep through the winter.

Probably no place in the Zoo looks colder than the sea lions' pool. Visitors should not worry. In the first place, the water, which is moving and cannot freeze, is frequently warmer than the air. The sea lions, which have extra layers of winter fat, are delighted with the cold weather. They have big veins and arteries which circulate more blood, pound for pound, than a man's and thus provide a built-in heating system. Their flippers, too, have heavily veined areas to keep up a steady circulation of warming blood. Incidentally, in the summertime sea lions can often be seen with flippers up in the air as they attempt to cool these warm extremities.

NZP's bird collection produces its own separate set of winter chores and headaches. What does one do with an ostrich in a blizzard? How do you convince an Australian kookaburra that winter is coming to Washington when it knows perfectly well that it's almost summer down in Sydney? How do you heat a perch for an Andean condor? Keep the ice from freezing in the duck pond?

For some of the birds, winter here is laughably mild. The bar-headed goose from frozen lake country in the Himalayas won't mind it. Neither will the penguins. However, the National Zoo has an outstanding collection of tropical and subtropical birds, some exceedingly delicate. Many have outside cages and must be returned to fully heated buildings for the cold months. All the air ducts in the main bird house are sealed off to prevent any possible heat loss. Other birds are transferred into a variety of protected shelters for the cold months. Finding room for them all is largely the responsibility of Kerry Muller, Wildlife Biologist in the Bird Division, who can rattle off the exact whereabouts of more kinds of avian fauna than a Pentagon switchboard officer can find colonels. Many are moved inside the main bird house. Others find retreat until spring in heated shelters parked behind the pheasant line. There are plastic-covered holding areas in the valley flight cage and half a dozen temporary heated shelters in the big flight cage. There are also special facilities for birds in the basement of the bird house.

By October 15, infra-red lamps are checked and ready to provide heated perching areas for all birds that remain outdoors. Plastic cage covers are installed where needed. To keep water from freezing in the duck pond, a circulating pump keeps a constant stream of water bubbling beneath the surface. Specially designed feeders use light bulbs to supply enough warmth to keep food from freezing.

A problem arises when birds from the southern hemisphere fail to reverse their breeding cycle. The Australian black swans, for example, hatch young in the winter. The Zoo has had numerous successful broods of black swans despite the handicap, but it is critical that all the little ones can find enough room on mother's back to stay there, nestled in her feathers. Black swans have occasionally been known to gradually shift their photoperiod in northern hemisphere zoos, but in general maintain their reversed season.

Finally, the Zoo must anticipate the needs of some of its poikilothermic residents. Those are the ones we laymen usually call "cold-blooded", the reptiles and amphibians. As they cannot regulate their body heat, the range of temperature they can endure is narrow. All the reptiles are brought inside. The crocodilians, most turtles and Komodo dragon are transferred by October 1 and will remain indoors until the end of May. A few of the turtles stay outside, but elaborate provisions are made for them. A windbreak is built outside the reptile house, and filled in with humus, debris and pieces of lumber. The turtles

then burrow contentedly into the warm loose mass of material and find their own little nooks and crannies. They are supposed to hibernate there until spring, although they sometimes emerge and must be poked back into their holes.

Building out-of-doors hibernation grounds for turtles provides them with more natural conditions. Such special efforts are typical of all aspects of winterizing at the National Zoo. It is a complicated business, but if the animals are healthy and contented, nothing else matters. Thus the cold months pass, and the warm infra-red lamps glow on, day and night. The ground squirrels sleep. The wolves snap at falling snowflakes. The lesser pandas dream of the Himalayas from high-up perches in their special tree. Meanwhile, the time has come for Zoo staffers to think about spring, and an about-turn job called "summerizing".

—Jocelyn Arundel

Even when there is snow outdoors, everything is cozy inside the reptile house.

(NZP photo)

FOSTER FATHERS FOR OUR FEATHERED FRIENDS

Many Zoo visitors and employees have shown a great interest in the bird division's incubation and rearing programs. Although many species of birds have been raised in the National Zoo since its beginnings, the present programs of artificial incubation and brooding were initiated when the remodeled bird house received new forced-air electric incubators in 1966.

With many types of birds, especially those whose young are naked and helpless when hatched, it is best to let the parent birds incubate and feed their own chicks. Several of our birds have done very well in this respect, some noteworthy examples being the hoopoes, yellow-tufted woodpeckers and yellow-bellied fruit pigeons, all of which raised young last year.

Other birds have young that are covered with down, can run about, and can feed themselves as soon as hatched. With these types the production and efficiency are greatly increased when the eggs are removed, hatched and raised artificially. Examples would be pheasants, quail, guinea fowl, turkeys, peafowl, cranes, bustards, ducks, geese, swans, ostriches, rheas, emus and others.

Sometimes eggs or young of species that are normally left to rear their own young are deserted, and then we attempt to hand raise them by artificial means. This was done successfully with the roadrunner recently.

To hatch an egg successfully, several factors must be taken into consideration. First, it must be incubated at the proper temperature. For most eggs the incubator is set at 99.5°F.; for emu and ostrich eggs, however, 98°F. is better. A second important factor is humidity, which must be kept at a specific requirement level. For most birds a relative humidity of 82 to 85% is proper; however, some species have a wider tolerance, and many others have a very specific requirement, often to half a degree. For many species the exact requirements of humidity are still unknown and much work must still be done in zoos before the answers are found. A third incubation requirement is that the egg be turned 180° at least three times daily to keep the egg membranes from adhering to the shell and to aid the growing embryo in assimilation

of food and in respiration. The more advanced larger incubators are equipped with automatic turners, whereas in the smaller units this must be done by hand. Turning should be discontinued two or three days before hatching, and of course this requires a precise knowledge by the operator of the incubation period for each species, and he must keep track of the time that each egg has been incubated. This time varies greatly with the kind of bird involved; for instance, in some species of hummingbirds the incubation period may be as little as ten or eleven days, whereas with the kiwi or emperor penguin, it may take as long as eighty days. For many varieties of birds the exact incubation period is still undiscovered, and there is much room for research in this area, often contributed to by data secured in zoos. One can well imagine what a vast field this is when one considers that there are approximately 8,600 full species of birds.

In order to obtain better results with the emu eggs, they are set in groups of four to give the chicks, when they hatch, the benefit of each other's company and to aid the young birds in feeding. A small flock of baby birds does better than a solitary young, especially if care is taken to see that they are all the same size, and there is no larger chick to pick on them.

Most Zoo visitors are impressed with the great variety of sizes and colors among the eggs. The large emu eggs, weighing as much as 26 ounces, and with a color and texture very similar to an avocado, never fail to draw comment, as do the smaller tinamou eggs with a texture and color like that of lacquered porcelain. The variety of colors and patterns in eggs is almost endless.

The colors and patterns of the newly hatched young birds are equally varied, ranging from the pristine silver-white down of the young black-necked swans to the uniform dark chocolate brown of baby tufted ducks, with a wide spectrum of colors, stripes and dots in between, all of which add to the universal appeal of these babies.

It is interesting to watch the colors and patterns of these young birds change as they grow and obtain new plumage. These juvenal transitional plumages are undescribed for many types of birds, and the Zoo is often able to contribute much data on this subject as the young birds grow in captivity.

It has often been asked, "What becomes of all the young birds you raise?" The answers vary. Many are used to expand the existing collection, for exhibition and future breeding stock. Others are used for exchange with other zoos, forming an important part of our acquisition program. Many of our rare and endangered species may in the future be used for re-stocking to help preserve the species for posterity. Whatever the final disposition may be, the bird division's propagation program is a very important part of the Zoo's activities.

—Kerry Muller

"OUR WILD ANIMAL RESOURCES"

Having seen their efforts at improving the physical structure bearing fruit, the Friends of the National Zoo are devoting themselves to building up the educational facilities of the Zoo. Their guide program has met with great success and they have now gone into the lecture bureau field. A monthly series of talks on the general subject "Our Wild Animal Resources" is being held in the elephant house at 8:15 in the evening.

The series had a brilliant opening on November 25th with S. Dillon Ripley, the distinguished Secretary of the Smithsonian Institution, speaking on "Historic Patterns in Man's Use of Wild Animals". He also discussed man's misuse of animals, saying that as far back as the Pleistocene age it may have been an overkill by prehistoric man that led to the extinction of animals that we know only as fossils, such as the Madascan elephant bird (the roc of Sinbad) and the giant ground sloth. The domestication of animals, however it was accomplished, brought man into close contact with certain species, but mismanagement of domestic herds led in some instances to over-grazing. The over-grazing done by sheep and goats, for instance, destroyed pasture lands and made of formerly fertile fields deserts that endure to this day. In the question and answer period which followed, one ten year-old lad asked why man had never domesticated bears!

On the evening of December 16th, Miss Emily Hahn was the speaker. Miss Hahn is well known for her articles in the New Yorker and is also the author of several books, including "Animal Gardens", a history of zoos from ancient times to the present day. She

is a charming and witty speaker and also a lover of zoos. She began by admitting that never in her wildest dreams had she anticipated lecturing in the elephant house, but she took the accompanying noises in her stride, and if she occasionally said: "Goodness, what was that?" she was not visibly disturbed by interruptions from the inmates. Her subject was "The Animals We Keep: An Historical Look at Zoos, Circuses and Pet Keeping". Much of her material was based on research that she did for "Animal Gardens", but she added delightful anecdotes from her own life, such as the story of how when she was a child she realized that chimpanzees in zoos were bored with nothing to do and her great ambition was to be wealthy enough to buy every captive chimp a cheap alarm clock and give him a new one every day, thinking of the fun he would have pulling it apart. That led to a discussion of Desmond Morris' recent article in Life and she said: "Desmond Morris has a special gift. He can drive more scientists crazy with rage than any other writer I for one have ever read . . . . . for he continues to interpret animal behavior in his own way, which is often—usually—highly individualist." She agrees, as we all do, with Morris' insistence that animals must have something to interest them, otherwise we have "an antiseptic museum of living misfits." She also realizes the problems that face the zoo man. She disagrees with Morris' proposal that zoos specialize, and keep only cats, or only bears, etc. This would not appeal to the animal lovers who when they go to a zoo expect to see elephants, primates, reptiles as well as felines, wolves and antelopes.

The third lecture in the series was given by Theodore H. Reed, Director of the National Zoo. His topic was "Man's Responsible Use of Animals in Zoos". He began by saying that "animals may be considered similar to men in that they have two lives . . . one as an individual . . . the other as a contributing member of their species. The fate of the indivdual does not significantly affect the species life. The individual animal is significant to the ongoing life of the species only as it is reproductive. Individual animals in zoos, no matter how good their life is, are non-contributors to the continuing life of the species because they have been removed from the main stream of the species life. We who have the lives and destiny of these animals committed to our care must make it possible for these individual animals to make a contribution to the species life. That is what is meant by the responsible use of wildlife by zoos. The individual animals here in the zoo are representing their species . . . . They are ambassadors from the animal kingdom to us humans. . . It is through the zoo animals that we can and should learn about the animals in the wild. It is through animals in the zoo that animals in the wild are helped and benefited. Since there are no diplomatic pouches between animal ambassadors here and their native land, the return message must be carried by man so that the contribution made by zoo animals is returned to the on-going life of the species. It is my personal belief that in future years the children and adults who have visited zoos and learned to know and respect animals will always react favorably toward them. When they have the opportunity or when a decision or choice is to be made, the animal ambassadors will have influenced them so that the job of the conservationist or the game warden is a little easier."

Dr. Reed then went on to discuss the many ways in which a zoo acquires animals: by collecting expeditions, purchases, exchanges with other zoos, by births and hatchings, and by gifts.

All three lectures were heard by a large and appreciative audience.

—L.Q.M.

"SYMPHONY OF SOUND" LECTURE HALL

In these days of electronic music where concert-goers are treated to the sounds of banging pipes, chemical explosions and the crackling of electric current, the National Zoological Park has certainly taken its place in the "turned on" generation. As host to the Friends of the National Zoo lecture series the Zoo is doing its thing by converting the elephant house into an auditorium complete with animal accompaniment.

At the three programs held thus far only the guest soloists (S. Dillon Ripley, Emily Hahn and Theodore H. Reed) have been changed, while the background orchestration of sound effects is only slightly varied by the Nile hippos, the elephants, and the Indian and black rhinos. Each has its specialty, and attempts at a semblance of "conducting" are

done by the attending keeper who, in an effort to have only one background sound at a time, rushes madly from stall to stall with chunks of hay. In this manner the eating animal is temporarily silenced while another, who is trying to deliver a more sensitive passage, can be allowed to express himself.

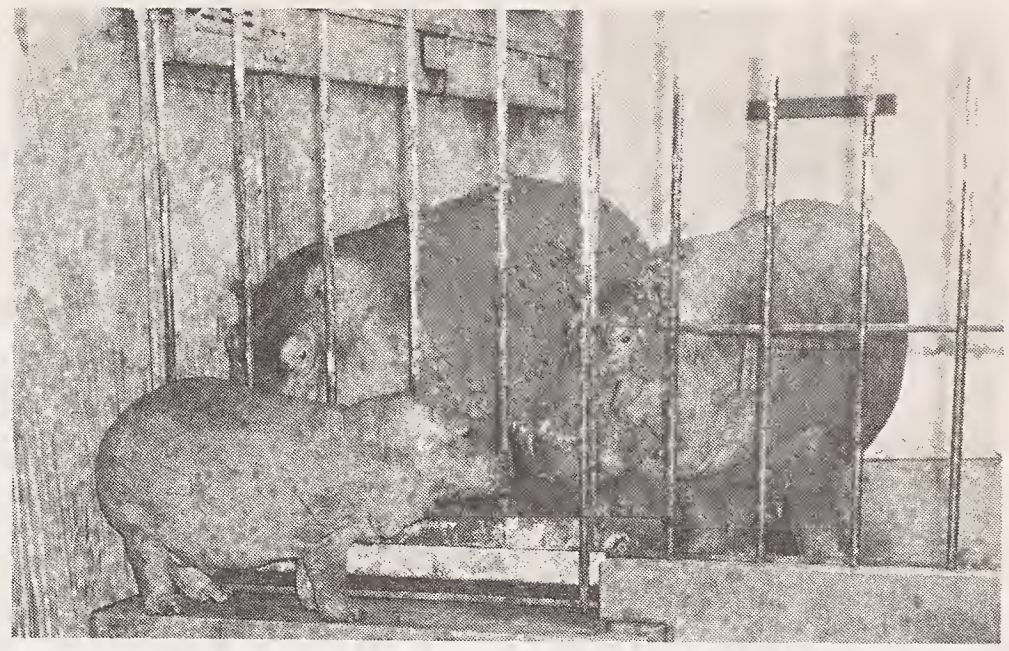
The entire ensemble is notably distinguished by its ability to handle interminable periods of fortissimo. This, of course, is not to say that crescendo is outside of their grasp but simply that most people's ears can't distinguish the increase in sound intensity when it starts out so loud.

Then too, one would certainly have to comment favorably on the breadth of their repertoire. The splash-and-snort section consists of Joe Smith and Arusha, the Nile hippos, with some minor assistance from Tarun, the male Indian rhino. Major splashes are accomplished by the first two artists in their pool directly behind the speaker's microphone so that reproduction is excellent throughout the building. The very best splash of the current season came when 4000 pounds of hippo apparently turned around and then over and in the process dropped on another 4000 pounds at which point 8000 pounds submerged only to return in a great fugue of nose-blowing and snorting. Unfortunately, Dr. Ripley, the soloist at the time, was apparently a bit late in picking up a cue, since the splash occurred just as he was saying ". . . . . ."?

As was mentioned, Tarun occasionally joins the splash-and-snort section by producing some interesting variations on the theme, but perhaps a true classicist would place him in a class by himself. If so, we would have a single member of the slosh-and-burble section. The instrument in this procedure is the water trough and it is played by rapidly moving the snout back and forth below the water surface. Generally this is followed by a lip trill that, to this critic, appears to be as much fun to perform as it is to hear!

To Tarun's left is his female counterpart in counterpoint who makes up the rub section. In this case the horn (solid and unvalved) is forced back and forth against any one of three similarly pitched doors producing a rather metallic tone.

If the above is done rapidly enough it evokes a chatter from the instrument which



The splash-and-snort section of the orchestra. (Smithsonian photo)

can be balanced nicely by the elephants' ear-flapping and chain-rattling section. This section is by far the most versatile in that the rhythmic cadence of the flapping ears provides a delightful contrast to the melodic clanging of a chain being simultaneously played by a trunk.

For the black rhinos, improvisation has been their forte. Since little Dillon is the only member of the family with even the slightest degree of musical talent, the sounds forthcoming depend on where the keeper-conductor has him placed. During the appearances of our first two guests he was confined away from his mother and this filled the air with a rather plaintive squeak that certainly wasn't becoming to such a tenor-looking specimen. On the third occasion, and presumably in honor of Dr. Reed, he was allowed to spend the program hours at his mother's side. From a sound-production standpoint this move was a great success as it marked the birth of the crash-and-bang section. Dillon's version of percussion, or concussion if you will, is the result of bouncing from mother to wall and back to bars.

Not to be forgotten is the Zoo's resident soloist, Jacob, the sulphur-crested cockatoo. Vocalizing under the stage name of Richard, our star made his Zoo debut in 1937, having been acquired by Dr. and Mrs. Mann during their National Geographic Society-Smithsonian Institution Expedition to the East Indies. Having listened to Richard's whistling and running dialogue for the last 32 years it was decided that one soloist at a time was enough and he was duly placed backstage for the first performance. The theory was that a Richard in the dark is a quiet Richard, but during

Miss Hahn's appearance a familiar voice rendered that old and favorite aria:

"Open the DOOR, Richard!"

As excellent as the programs have been thus far one can only wonder how much of their success is owed to the combined musical talents of those that call our auditorium home.

—Warren Iliff

CHILDREN'S TOURS

With great assistance from the ever-faithful docents (who had really counted on a little Christmas vacation from their duties as tour directors) three holiday trips were given for children of members of Friends of the National Zoo. The children, some 50 or 60 of them, met each time at the elephant house, and on their first visit were taken to the bird house, with Mrs. Georgia Buck in charge. A few days later the group went to the reptile house, where Keeper Lee Schmeltz held them fascinated with tales of his charges. The third tour was "Behind the Scenes" with Mrs. Isabel McDonnell and Mrs. Joy Tenney. What it meant to one youngster is shown by the following letter which said in part:

"Thanks ever so much for letting me go to the zoo last Saturday. I had a wonderful time. We did all kinds of fabulous things. The elephants put on a show just like in the circus. We fed the monkeys dates and each person threw fish to the seals. We saw where the food was prepared and where the insects are raised for the birds. We went to the lion house and saw the white tiger and an animal like a huge guinea pig. A 500 pound gorilla and an outang were interesting. We each were given a poster of the white tiger. Since I'm collecting posters it was perfect.

"We had a fabulous Christmas . . . . . .

Charlene Bloedorn"
(Aged 13)

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MARION McCRANE RESIGNS

There may be no such thing as an irreplaceable man, but Marion McCrane is very nearly an irreplaceable woman.

She joined the Zoo staff as Zoologist in April 1962 and resigned December 1, 1968. In little more than six years she built up the Information and Education Division, starting from scratch. Her first responsibility was to inaugurate the labeling program and set up the sign shop in the basement of the elephant house. She was the Zoo's public relations officer for the press and television; she took visiting dignitaries on tours of the Zoo; she was a member of several committees at the Smithsonian Institution; she started "Tiger Talk", the Zoo newsletter; she wrote for SPOTS AND STRIPES; with patience and knowledge she answered the many questions that are posed daily by letter and telephone; she was the liaison between FONZ and the Zoo, and trained and conducted classes for the FONZ guides. Perhaps the highlight of Marion's career came in 1965 when she escorted a pygmy hippopotamus from Washington to Pretoria. Her glowing account of her African trip appeared in SPOTS AND STRIPES, Vol. 2, No. 4.

Ted Reed said "some of the bubbles have left the champagne" when Marion announced her resignation in order to marry and live in New Jersey. Her many friends in the Zoo and among the FONZ wish her great happiness in her new life.

No attempt to replace her is being made at the present time.

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ERNEST P. WALKER DIES

Former Assistant Director of the National Zoological Park, Ernest P. Walker, died on January 31 at the age of 77. Although in frail health, he was at the time of his death working on the third revision of his magnum opus, "Mammals of the World." He was a charter member of the Friends of the National Zoo, an expert photographer, and well known for his studies of bats and for his theories on monkey language, based on his studies of his pet douroucouli, "Muriel." During his 26-year tenure at the Zoo (1930—1956) he devoted much of his energy to improving the health, care and diet of animals, particularly small mammals, whom he fondly called "the little folks."

—L.Q.M.

Lucile Q. Mann, Editor

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